

A dramatic photograph of a volcanic eruption. A thick, billowing plume of ash and smoke rises from a dark, rocky volcanic vent. The plume is illuminated from below, giving it a bright orange and yellow glow, while the top and sides are in shadow, showing a dark grey color. The foreground shows the dark, jagged rim of the volcano.

Visualization Case Study: Eyjafjallajökull Ash

Robert Simmon
NASA Earth Observatory
December 16, 2010

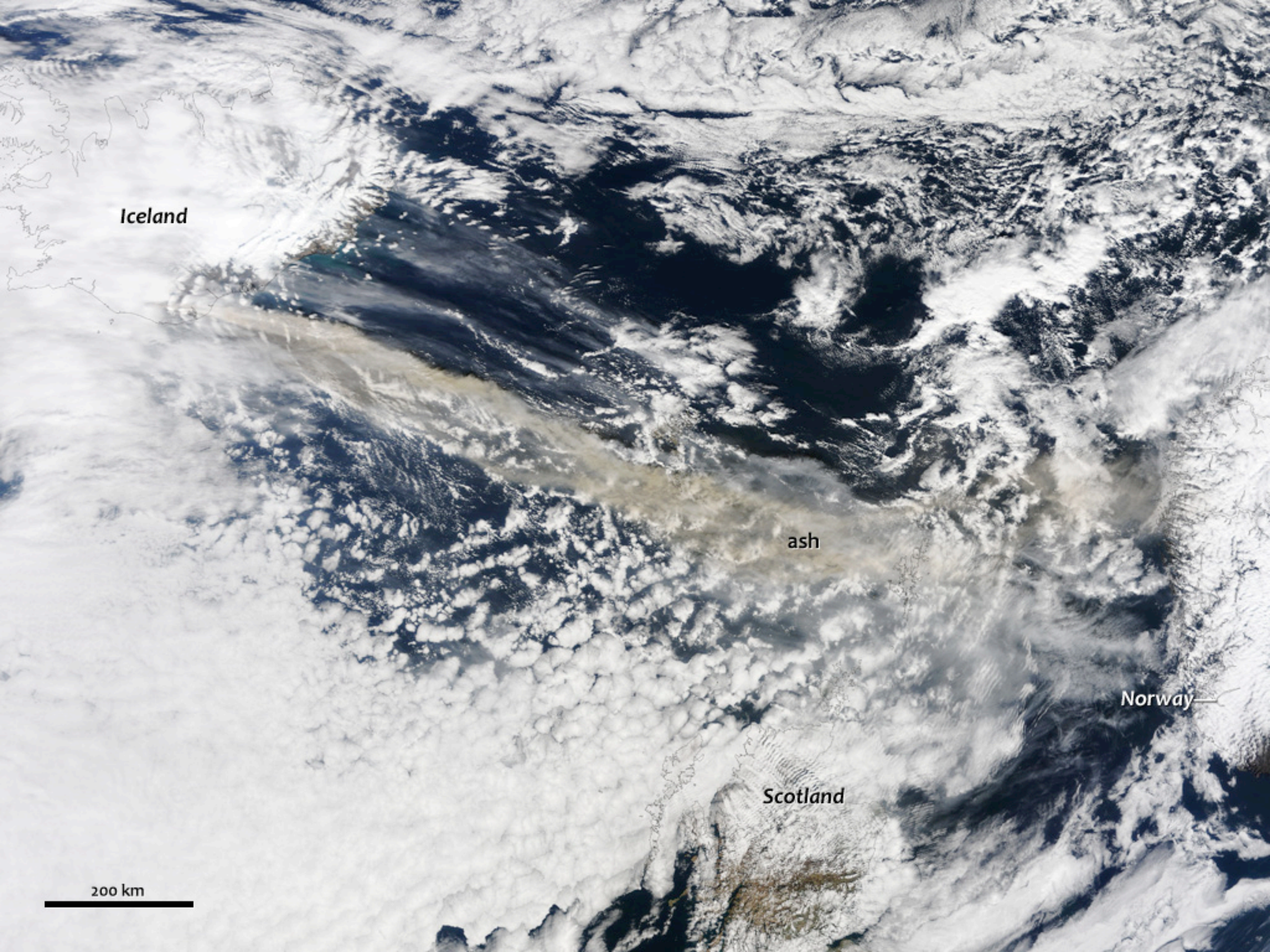
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Eyjafjallajökull

pronounced: *Aye-ya fyah-dla jow-kudl*



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Iceland

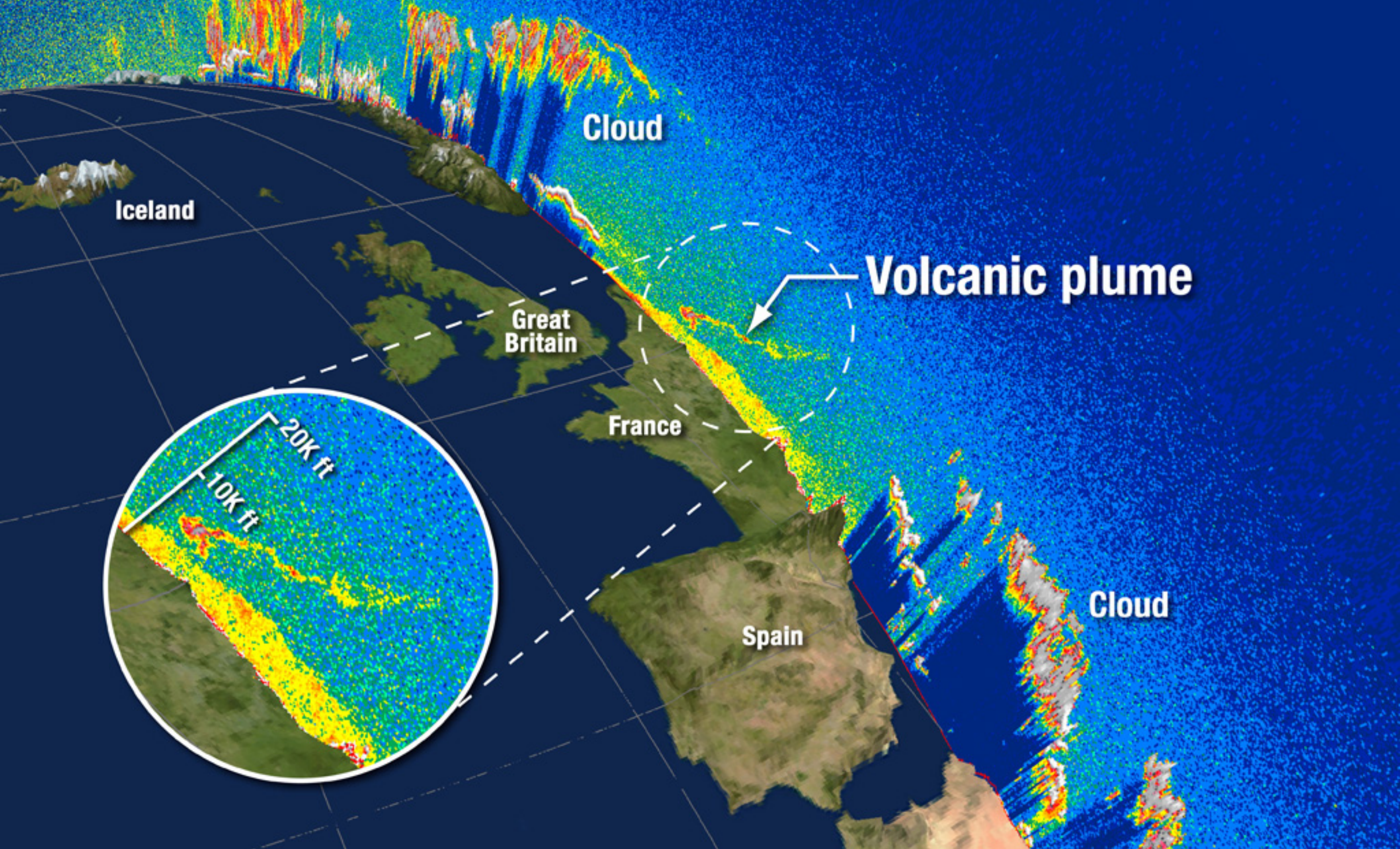
ash

Scotland

Norway—

200 km

3699	Genf	18:10	gestrichen
924	Mailand/Malpensa	19:00	gestrichen
846	Wien	19:10	gestrichen
56	Helsinki	19:40	gestrichen
24	Frankfurt	19:45	gestrichen
36	Karlsruhe-Baden-Bad.	19:45	gestrichen
1	Nürnberg	19:45	gestrichen
	Düsseldorf	19:45	gestrichen
	Warschau	19:45	gestrichen
	Dresden	19:50	gestrichen
	Luxemburg Saarbrücken	19:55	gestrichen
	München	19:55	gestrichen
	Zürich	19:55	gestrichen
	Köln/Bonn	20:00	gestrichen
	Nürnberg	20:00	gestrichen



Color



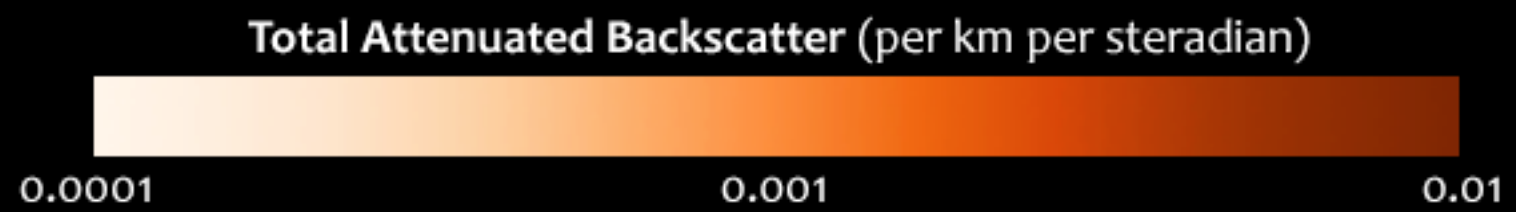
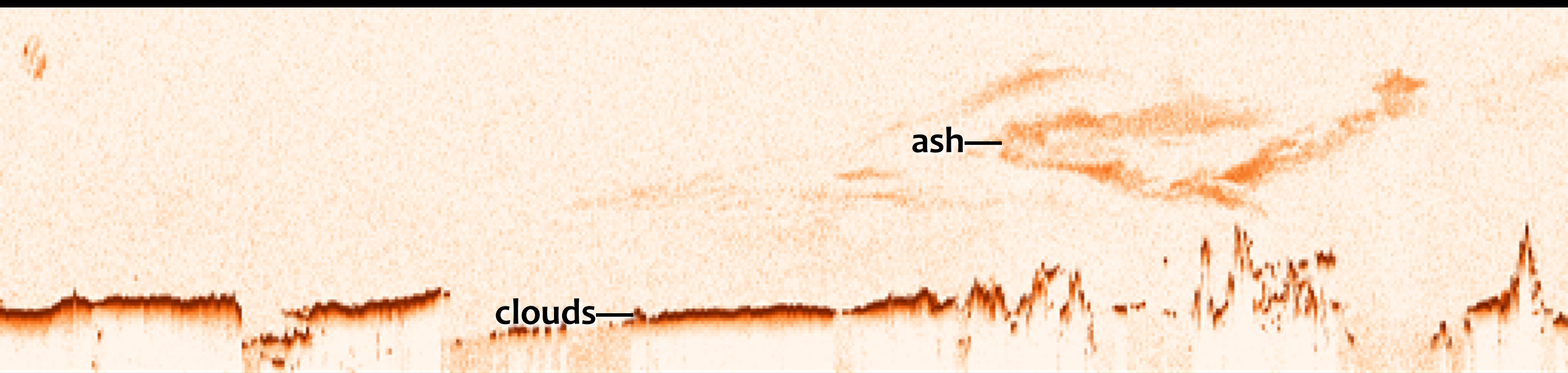
Lightness



Hue

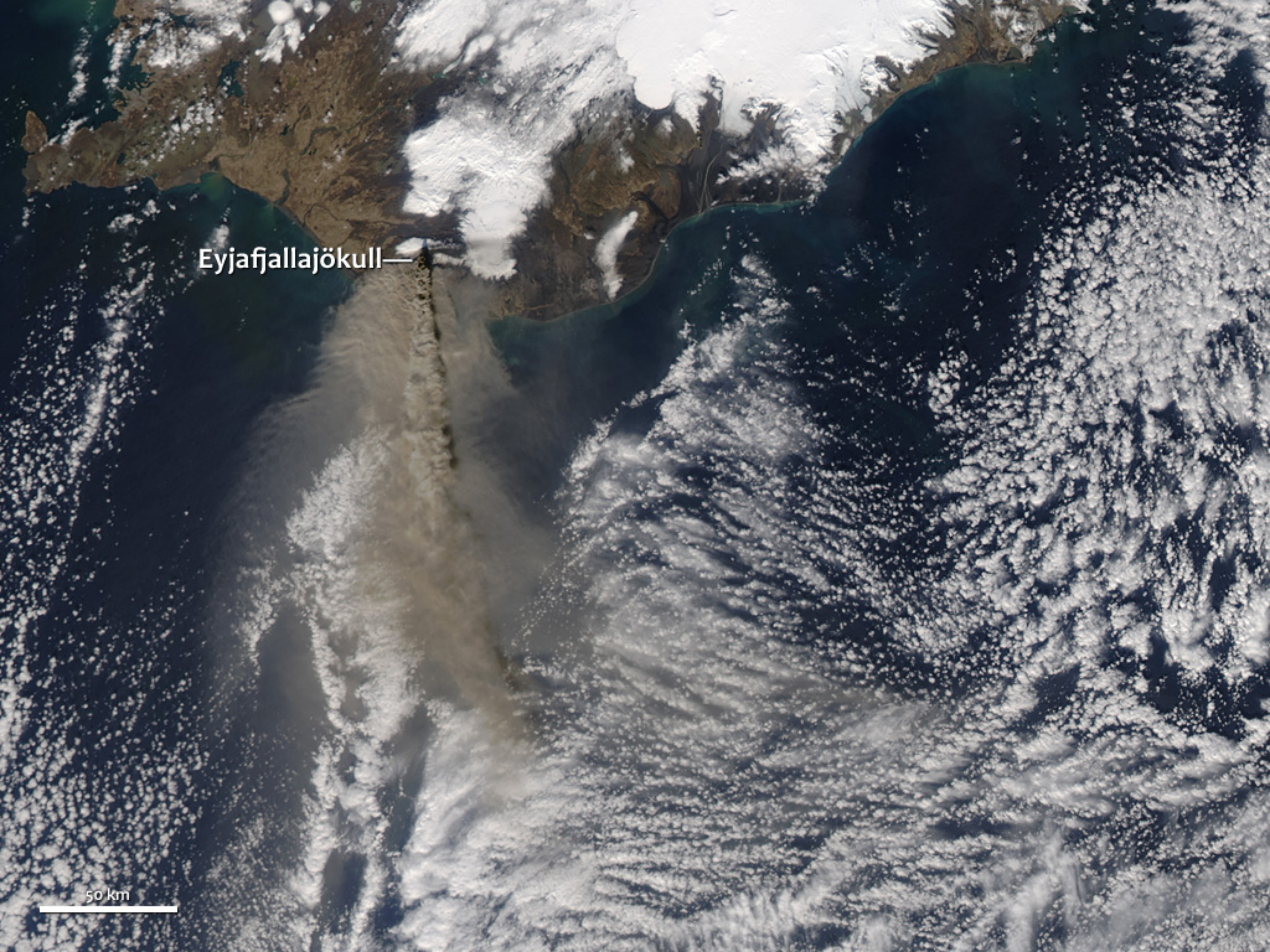


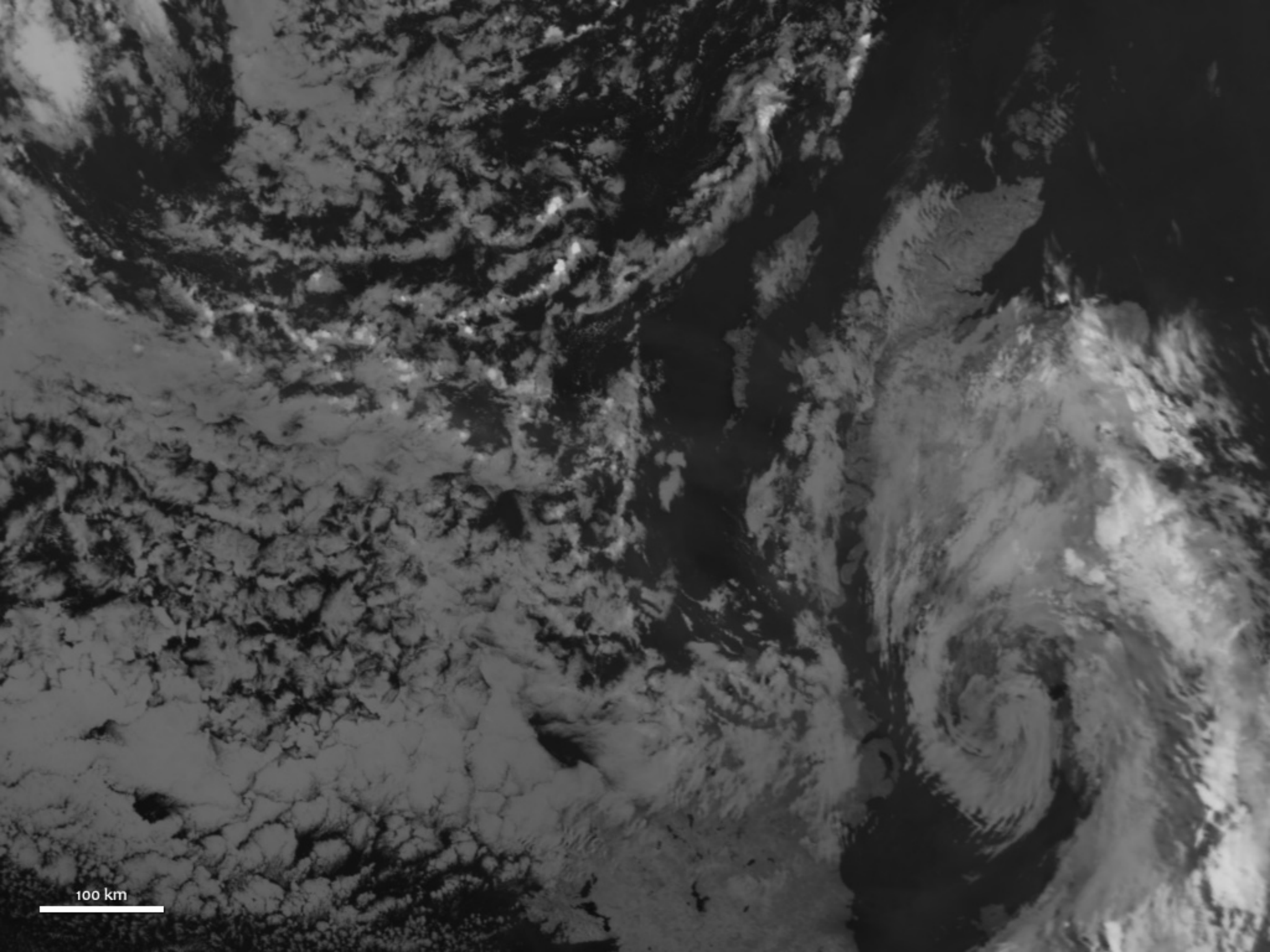
Saturation (Chroma)



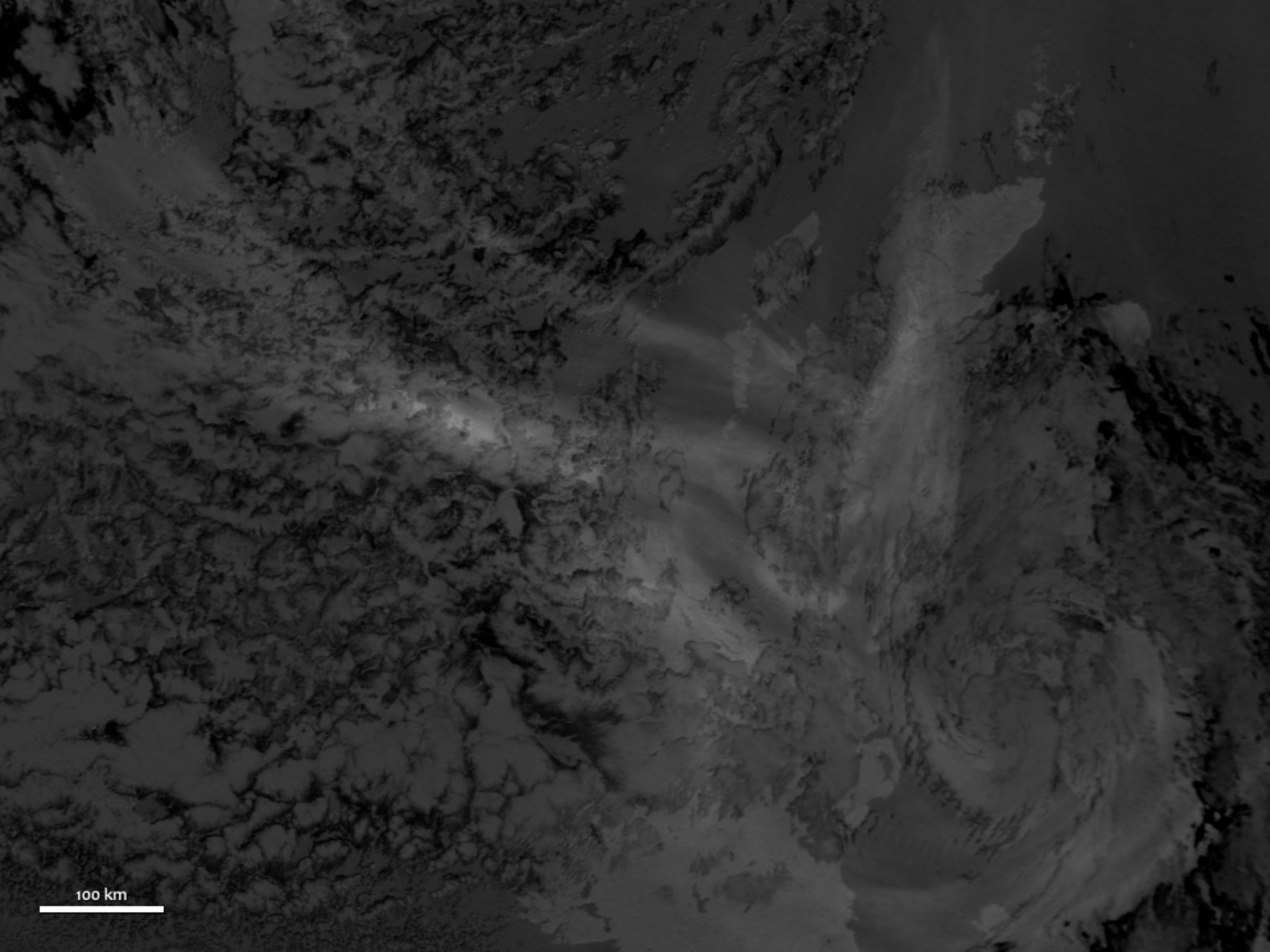
Eyjafjallajökull—

50 km

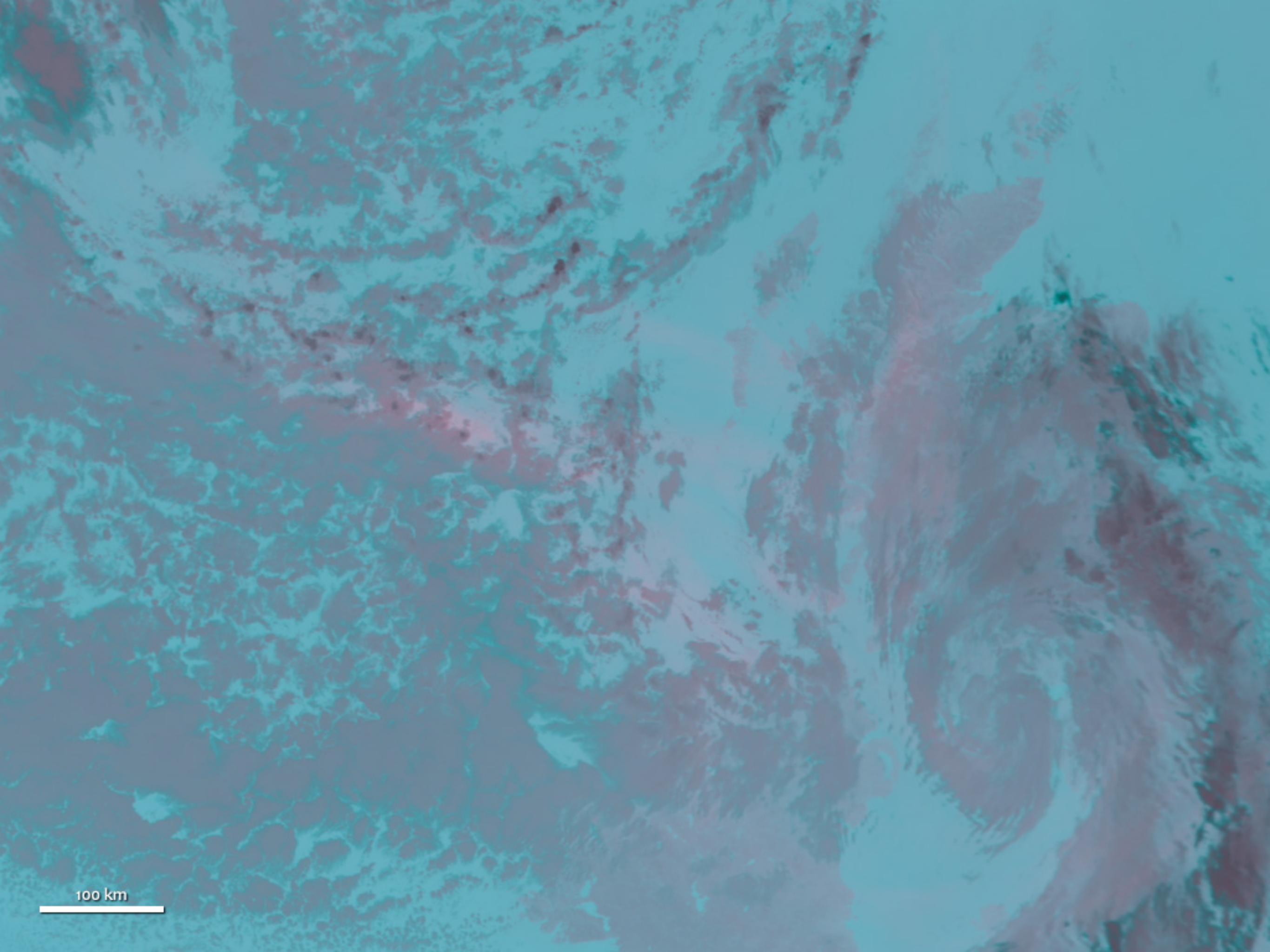




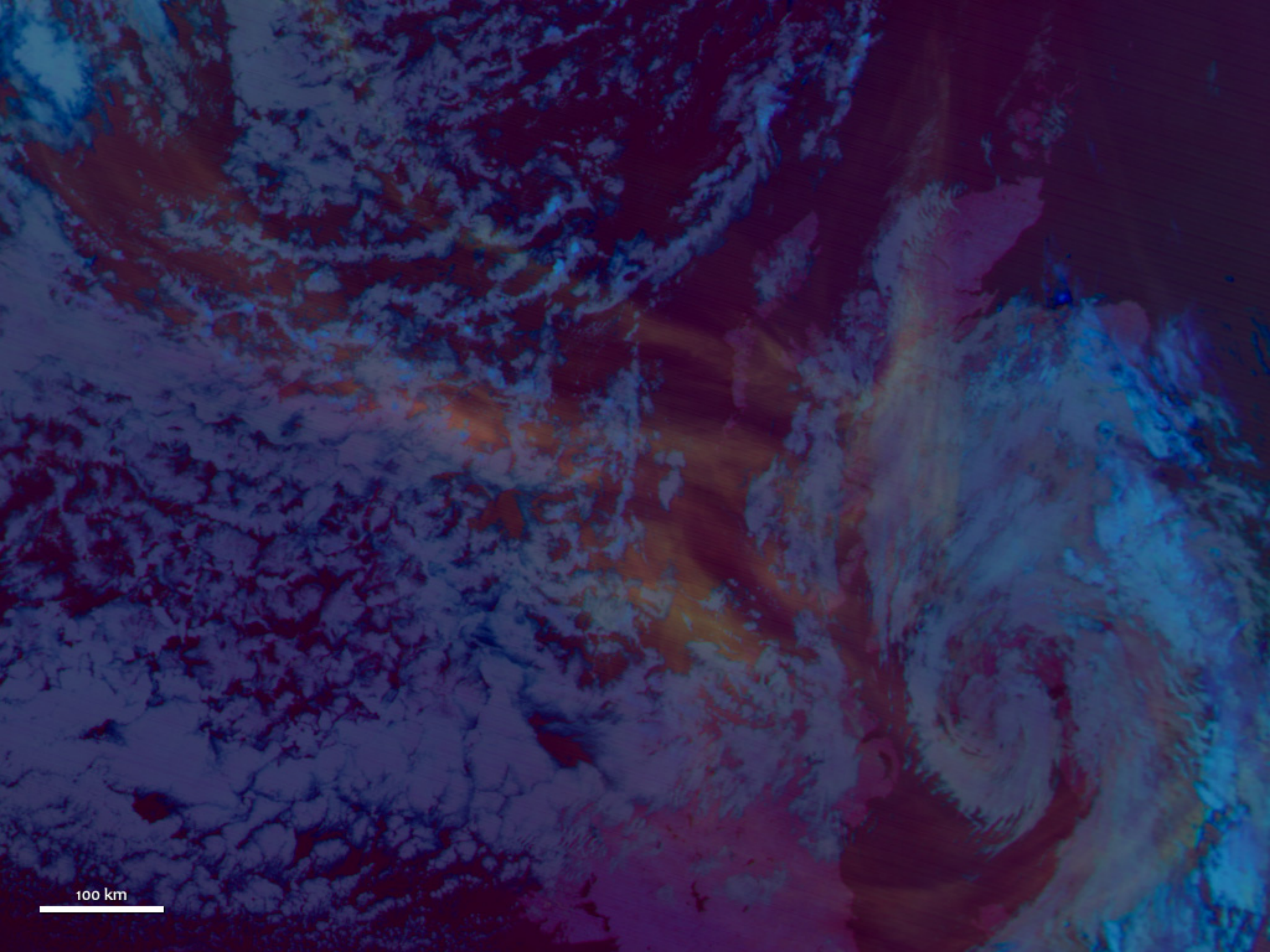
100 km



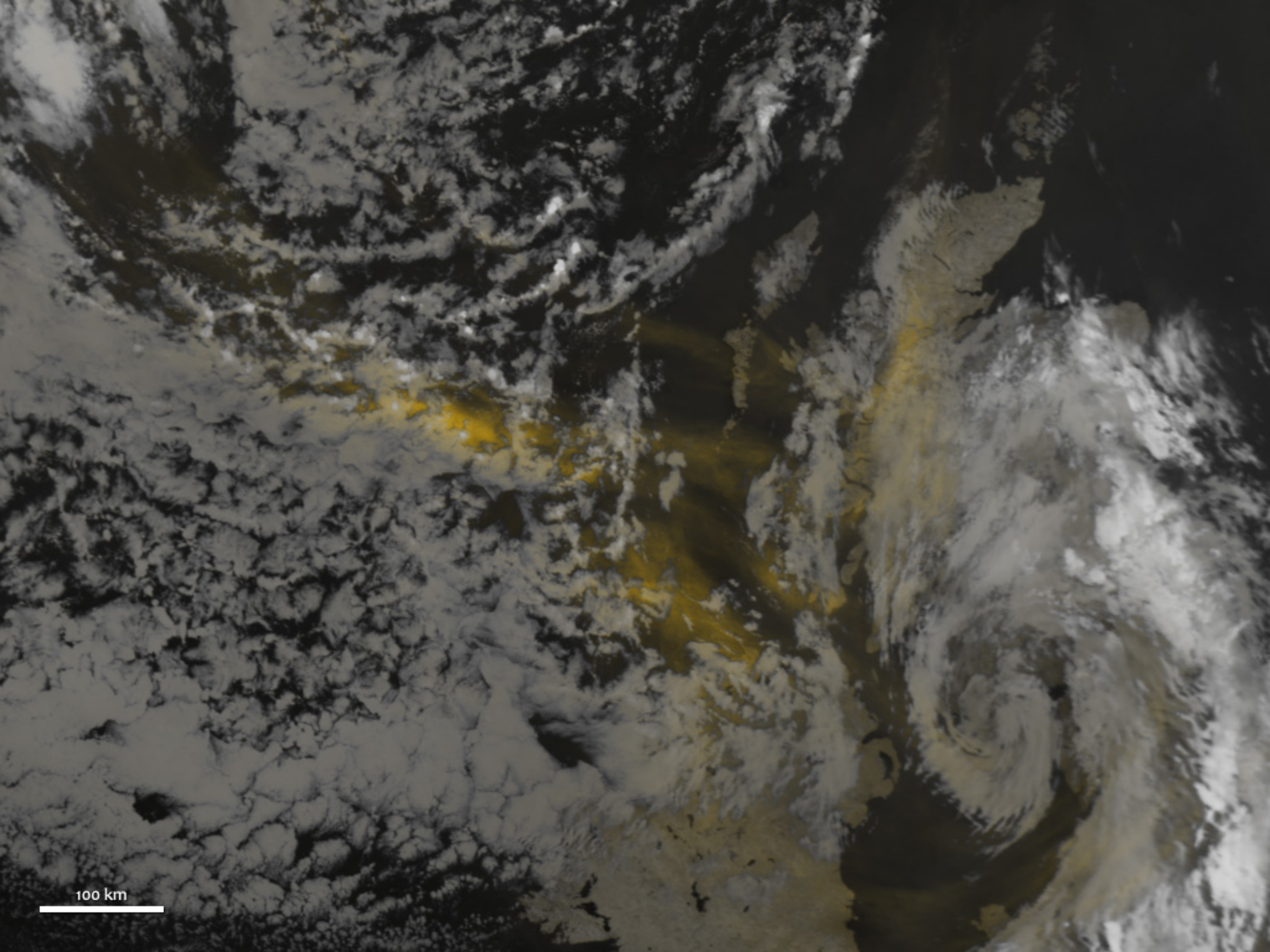
100 km



100 km



100 km



100 km



NIH National Eye Institute

Preattentive Processing

Form

- line orientation
- line length
- line width
- line collinearity
- size
- curvature
- spatial grouping
- blur
- added marks
- numerosity

Color

- hue
- intensity

Motion

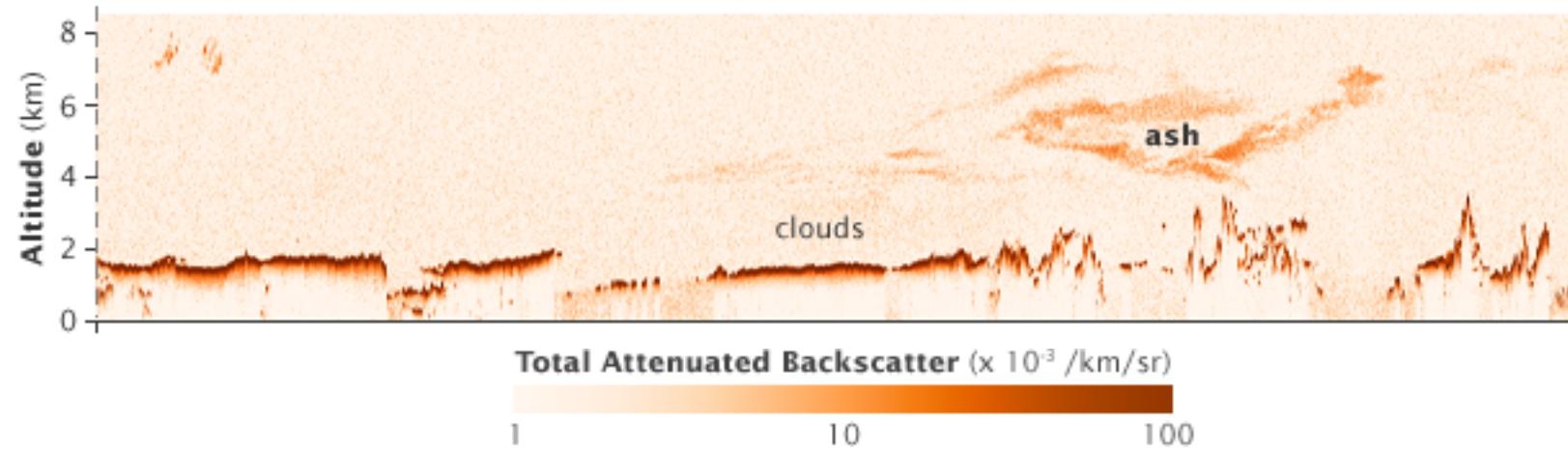
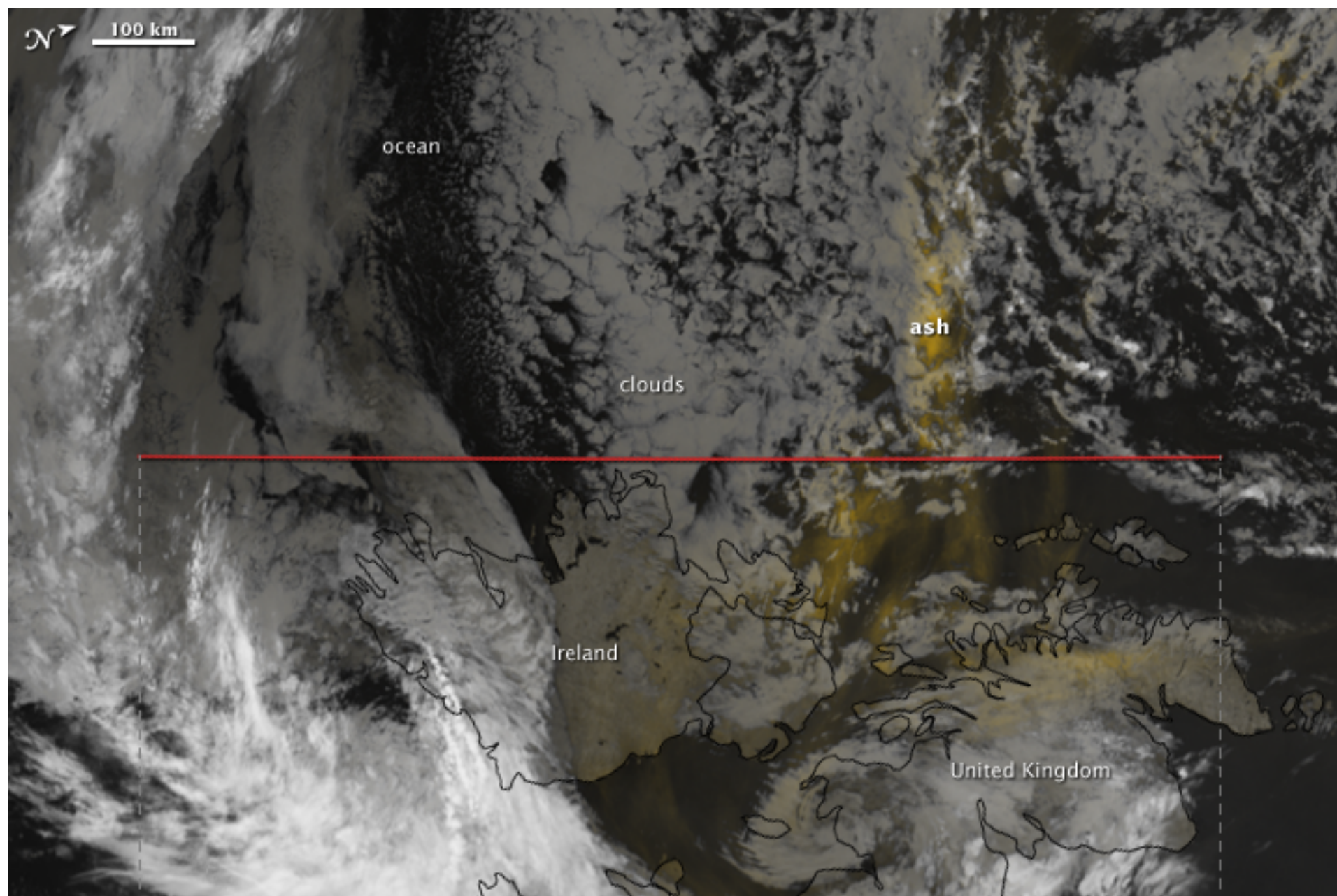
- flicker
- direction of motion

Spatial Position

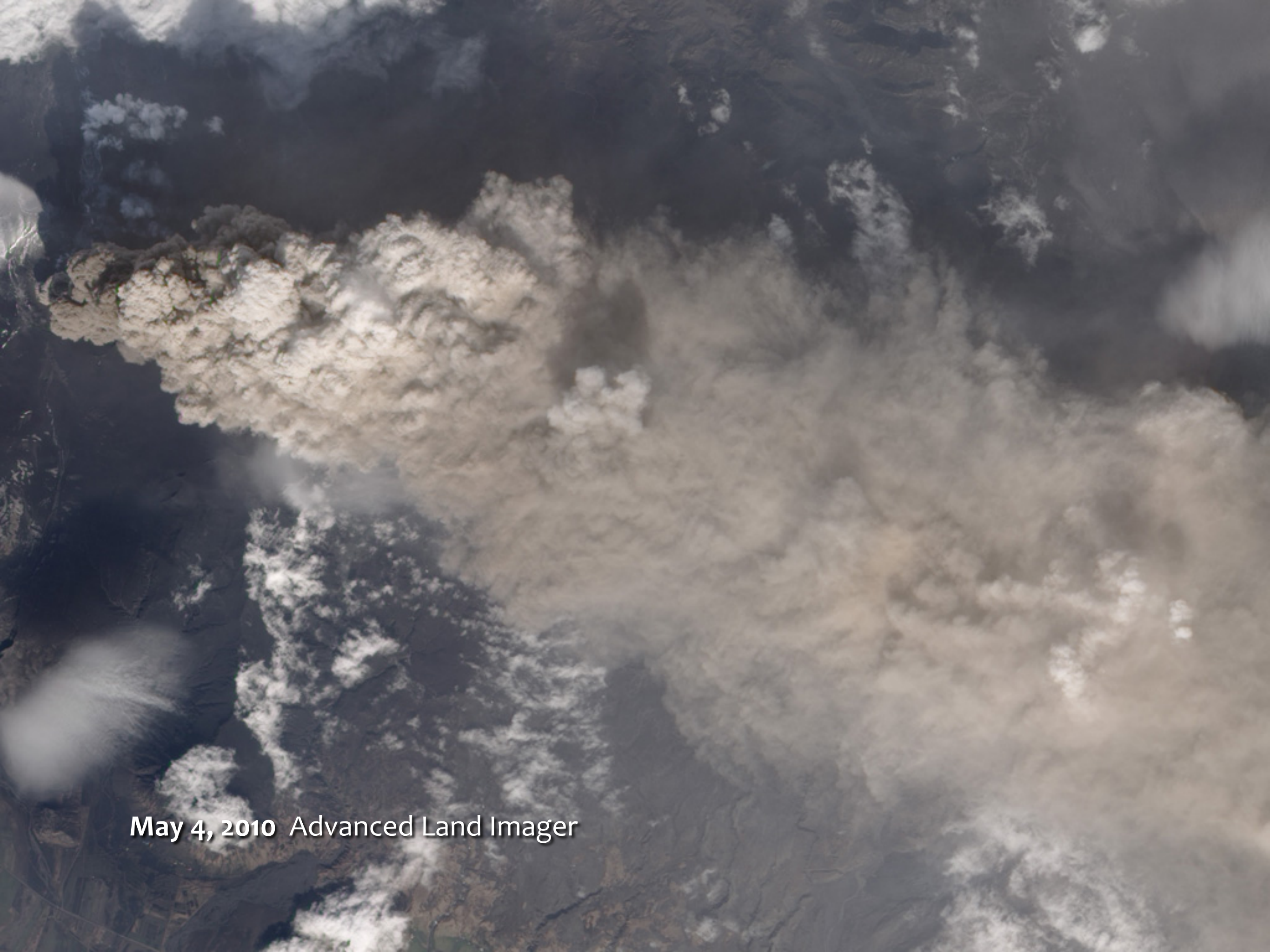
- 2d position
- stereoscopic depth
- convex/concave shape
- from shading

2	8	1	8	8	6	9	1	6	7
1	7	9	5	2	7	2	8	3	6
8	3	7	4	6	8	7	4	4	4
7	3	7	9	4	9	2	5	2	4
0	9	7	2	2	4	5	0	8	6
7	9	0	5	5	3	6	7	5	3
1	6	3	7	7	0	0	4	3	1
4	8	9	9	0	0	4	6	2	9
5	5	9	9	9	6	1	1	8	1
8	7	5	3	7	1	7	8	2	5

2	8	1	8	8	6	9	1	6	7
1	7	9	5	2	7	2	8	3	6
8	3	7	4	6	8	7	4	4	4
7	3	7	9	4	9	2	5	2	4
0	9	7	2	2	4	5	0	8	6
7	9	0	5	5	3	6	7	5	3
1	6	3	7	7	0	0	4	3	1
4	8	9	9	0	0	4	6	2	9
5	5	9	9	9	6	1	1	8	1
8	7	5	3	7	1	7	8	2	5



earthobservatory.nasa.gov/blogs/elegantfigures



May 4, 2010 Advanced Land Imager